

# United States Patent [19]

# Yoshihara et al.

[54]

[75]

5,926,748 **Patent Number:** [11] \*Jul. 20, 1999 **Date of Patent:** [45]

4]		LE RADIO APPARATUS CAPABLE PING ANTENNA AWAY FROM USER ALLING	5,260,998 5,271,684	11/1993 12/1993	Blaese	379 343
5]	Inventors:	Shigeo Yoshihara; Michio Nagai; Masaki Ichihara, all of Tokyo, Japan	5,363,445 5,404,390	11/1994 4/1995	Katz 3   Shyu 3   Tamura 3   Tsao 3	379 45
3]	Assignee:	NEC Corporation, Japan	FO	REIGN	PATENT DOCUMENTS	

[*]	Notice:	This patent is su	abject to a	terminal dis-
		claimer.		

[21] Appl. No.: 08/276,332

### Jul. 15, 1994 [22] Filed: Foreign Application Priority Data [30]

L	0	1 1	•	

[51]	Int. Cl. <sup>6</sup>	H04B 1/38
[52]	<b>U.S. Cl. 455/90</b> ; 455/57	5; 343/702
[58]	<b>Field of Search</b> 455/	89, 90, 97,

455/128, 129, 550, 575; 379/58, 59, 433, 428, 430; D14/138; 343/702, 880, 881, 883, 901, 903

#### [56] **References Cited**

### U.S. PATENT DOCUMENTS

3,134,075	5/1964	Langevin
4,039,760	8/1977	Gregory et al 379/58
5,079,558	1/1992	Koike
5,109,539	4/1992	Inubushi et al 455/89
5,166,695	11/1992	Chan et al 343/901
5,197,091	3/1993	Takagi et al 455/90
5,214,434	5/1993	Hsu

5,218,370	6/1993	Blaese 343/702
5,260,998	11/1993	Takagi 379/433
5,271,684	12/1993	Phillips
5,336,896	8/1994	Katz
5,363,445	11/1994	Shyu
5,404,390	4/1995	Tamura
5,513,383	4/1996	Tsao

### FOREIGN PATENT DOCUMENTS

508299	10/1992	European Pat. Off
590671	4/1994	European Pat. Off
603012	6/1994	European Pat. Off
59-92629	5/1984	Japan .
63-67032	3/1988	Japan .
A0213032	8/1989	Japan 455/89
403263957	11/1991	Japan 379/428
4-127723	4/1992	Japan .
4152724	5/1992	Japan 379/58
404185038	7/1992	Japan 379/430

Primary Examiner—Thanh Cong Le Attorney, Agent, or Firm-Ostrolenk, Faber, Gerb & Soffen, LLP

#### **ABSTRACT** [57]

A portable radio apparatus includes an antenna, a transceiver body having a receiver on an upper portion thereof and a transmitter on a lower portion thereof, and a mechanism for drawing out the receiver from the body to a side close to an ear of an operator. Also, in a portable radio apparatus including a transceiver body, a receiver provided in the body and an antenna provided on the body, the transceiver body is divided into a first unit including at least one receiver and a second unit coupled with the first unit, and the antenna is projected from the second unit.

## 10 Claims, 8 Drawing Sheets

